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Machines for Closing Sausage Casings

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Description

It is known that continuous packaging bags such as sausage casings and the like can be closed by using wire clips in one area in which the package casing has previously been gathered together, compressing the contents, in particular the sausage meat. The machines used for this purpose have a gathering device and a closing device, which cooperates with a saddle apron having a female die. The filled strand of sausage casing is placed in the saddle apron. Then operation of the gathering device is begun, displacing the sausage meat out of the area of action of the gathering device and gathering the sausage casing together until finally it takes up such a small cross section that the clipping device, which is used as the closing device, can perform its

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operation, pushing a U-shaped wire clip by means of a ram around the gathered area of the sausage casing and pressing it against the female die contained in the saddle apron to close the clip tightly around the sausage casing. Any known sausage filling machine may be used for filling the sausage casing.

There are two types of machines for closing sausage casings, namely first, the so-called tabletop devices which operate separately from the sausage filling machine, and second there are the automatic machines which are to be connected to the sausage filling machine mechanically and via the control unit. When using the much less expensive tabletop equipment, a sausage strand several meters long is first formed on the sausage filling machine and then it is divided into a plurality of sausage segments on the closing machine; this is accomplished by placing pairs of clamps on the strand and optionally cutting between the two clamps. The size and weight of the individual sausage links results from the fact that the closed sausage end is guided against a stop before setting a subsequent closure. This is necessarily associated with the issue of portioning accuracy, especially since the sausage strand is practically free of pressure during the closing operation and there may therefore be irregularities in filling. The gathering device is generally operated by hand, while the closing mechanism is pneumatically driven and is automatically started as soon as the gathering device has reached its end position. In contrast with that, with the automatic closing machines, the gathering device is also motor driven. In the working interaction, it then receives the control pulse, which starts its operation from the sausage filling machine when the latter has ejected a previously determined sausage portion. As soon as it has reached its gathering position, the closing mechanism is automatically started. As soon as the closing operation is concluded and the closing ram and the gathering device have returned to their starting positions, the closing machine delivers a pulse to the sausage filling machine for a

renewed filling operation. The automated closing machines thus permit a completely automated filling and closing sequence, but an operating person must also be present to intervene when there is any problem and to be able to replenish the supply of sausage casing promptly.

Automatic closing machines are approximately five times more expensive than the tabletop equipment; this is due not only to the complexity of the controls and the mechanical drive for the gathering device but also mainly attributed to such accompanying mechanisms which ensure a smooth operation and accident prevention in the area of the gathering device. In particular, the safety equipment in the area of the gathering device is extremely complex and expensive.

The object of the present invention is to create a closing machine which will permit a largely automatic sequence of operations and will nevertheless be much less expensive than an automatic closing machine.

This invention is based on the known automatic machine described above, namely a machine for closing sausage casings and the like, comprising a gathering device, a motor-closable closing device and a control device which is equipped for an automatic sequence of the closing operation after the operation of the gathering device and with a control connection for automatic triggering of a filling operation on the sausage filling machine which is to be connected.

The solution according to this invention consists of setting up the gathering device for manual operation.

This is therefore a machine of the automatic type described above, but it has been modified so that the control connection for automatic triggering of the gathering device by the sausage filling

machine and the motor operation of the gathering device are omitted.

Based on the known automatic machines, this is a step back in the direction of the tabletop machines described above, where the gathering device has also been operated by hand. The inventive accomplishment lies in the recognition that the essential advantages of automatic operation remain intact as a result of this modification, but the cost of the machine tends to be on the order of that of the tabletop equipment rather than that of the automatic machines.

The fact that the advantages of the automatic machines are preserved can be seen if it is recalled that the mechanical and essential part of the control connection to the sausage filling machine is preserved so that the positioning accuracy and the rapid operating sequence are maintained. Personnel costs are not increased because the automatic machines also require an operating person who is directly involved in the operation in the case of the present invention in that this person operates the gathering device. This yields the additional advantage that even sensitive sausage casings can be processed, i.e., the sausage casings which are usually reserved for the more sensitive manual operation of the gathering device rather than automatic handling.

The inventive merit is based on the fact that the savings are much greater than would correspond to the increased labor expended due to manual operation of the gathering device. That this is actually surprising can be seen by the fact that there have been both tabletop devices as well as automatic closing machines for many decades without the idea of manual operation of the gathering device being combined with the use of an automatic closing machine.

This invention is explained in greater detail below with reference to the drawing, which shows an advantageous exemplary embodiment in a perspective view in the figure.

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The closing machine 1 is supported by the stand bar 2 of a base (not shown in detail) and is connected to the sausage filling machine 3.

The gathering device plates 5 are pivotably connected to the stationary saddle apron 4 of the closing machine and can be moved by a manual lever 6 in a known way. Furthermore, the pneumatic operating cylinder 7 for the closing ram (not shown here) is connected to the saddle apron 4 and can be triggered by means of a pneumatic switch 8, which is in turn operable by means of a rod 9, which is connected to the hand lever 6 in such a way that the triggering of the cylinder 7 takes place when the gathering device 5 is switched to the final gathering position.

The piston rod 10 protruding out of the cylinder 7 at the top cooperates with a proximity switch 12 mounted on a stationary support 11, namely in such a manner that the switch 12 delivers a control pulse when the piston rod 10 is in the top position and thereby indicates that both the gathering device 5 and the closing ram are in their resting positions.

A cable 13 connected to the switch 12 is in turn connected to the control device of the sausage filling machine 3 in such a manner that a sausage filling process is initiated when the switch 12 delivers the signal mentioned above.

The sausage filling machine 3 has an outlet device 14, which is connected in a known manner to a filling spout 15 which carries the sausage casing supply 16 and a brake 17. A mechanically fixed connection between the closing machine and the sausage filling machine is ensured by a connecting rod 18.

This arrangement is used in the following manner. First the forward end of the sausage casing 16

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is closed. This process is initiated by operating the gathering device lever 6. Then the switch 12 delivers the signal for initiating the sausage filling operation on the sausage filling machine 3 which then delivers a first portion of sausage. As soon as this process is concluded, the operating person operates the gathering device lever 6 to initiate another closing operation.

It can be seen that thanks to the manual operation of the gathering device, all the safety equipment required with an automatic closing machine can be eliminated. Therefore, the cost of the inventive machine is usually less than half of that of an automatic closing machine.

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**Machines for Closing Sausage
Casings**

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Claim

Machine for closing sausage casings and the like, comprising a gathering device, and motor-operable closing device and a control device which is equipped for an automatic sequence of the closing operation after the operation of the gathering device and a control connection for automatic triggering of a filling operation on the sausage filling machine that is to be connected, characterized in that the gathering device (5) is set up for manual operation (6).

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